Elephantopus scaber induces cytotoxicity in MCF-7 human breast cancer cells via p53-induced apoptosis.

ABSTRACT

Plants have not only been consumed as food but have also been adopted as folk medicine for centuries. Elephantopus scaber Linn, a herb from the Asteraceae family, has traditionally been taken as decoction or tea to cure various ailments and diseases throughout the world. Recent studies had also suggested that this plant posses various bioactivities such as anti-bacterial, anti-inflammatory, hepatoprotective as well as anti cancer properties. In this study, the cytotoxic effect of an ethanolic extract of E. scaber on a breast cancer cell line, MCF-7 and the underlying cell death mechanism was examined. E. scaber showed cytotoxic effect towards MCF-7 cells with an IC 50 value of 15 μg/mL. In comparison to the untreated control, the extract triggered cell death with increased phosphatidylserine externalization, DNA breaks and significant morphological apoptotic characteristics in the MCF-cells. Furthermore, we also found that expression of the tumor suppressor p53 protein was up-regulated in response to the treatment. In conclusion, these results suggested that the ethanolic extract of E. scaber may be a potential anti cancer agent for human breast cancer cells by the induction of p53-dependent apoptosis.

Keyword: Ethanol extract; MCF-7; Tumor suppressor protein; DNA fragmentation, Phosphatidylserine externalization.